Trex Company

CT Solid Waste Advisory Committee

June 28, 2016

Overview

- Who We Are and What We Do
- Raw Materials Trex Consumes
- FFRG & WRAP Initiatives & Case Studies
- True Commitment to Consuming Recycled Raw Materials
  - Must either Change your Product, or
  - Change your Process

About Trex Company, Inc.

- Leading Brand of Composite Lumber in North America – invented category
- A former division of Mobil Corporation, the company was formed by four Mobil executives in 1996 and went public in 1999
- Trex Company's Headquarters, R&D and Manufacturing Facilities are located in Winchester, VA
- A Second plant opened in Fernley, NV in 1999

Trex Recycling Facts

- In the past 10 years, Trex has recycled over 2.5 Billion pounds of polyethylene film
- 10,000+ collection points across North America
- Trex collects over 3 Billion recycled bags, films & wraps to support our manufacturing each year
  - Equivalent of over 50 Million #s of PC Film
- Trex is the largest domestic recycler of Post Consumer Film
- There are about 140,000 recycled bags, films and wraps in a 500 sq. ft. Trex Deck

What is Trex?

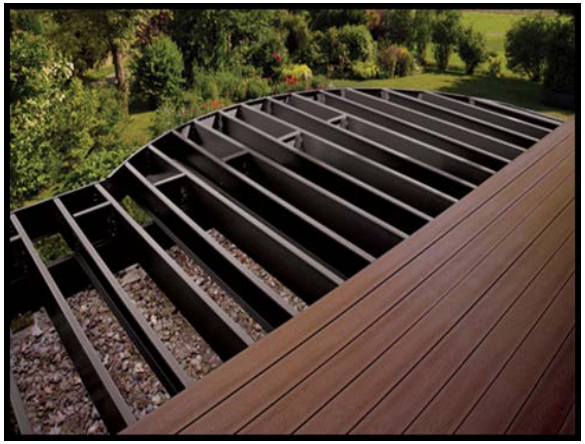
- Does not Crack, Split, Splinter or Rot
- 25-year Residential Warranty
  - 10-year Commercial
- Resistant to Moisture, Insects and Sunlight
- Slip Resistant- More so Wet than Dry
- Never Needs Staining- Only Requires Cleaning
- Works like Wood- use same Tools and Techniques
- No Toxic Chemicals or Preservatives
- Environmentally Friendly- Made of 95% Recycled and Reclaimed Materials

Product Offering

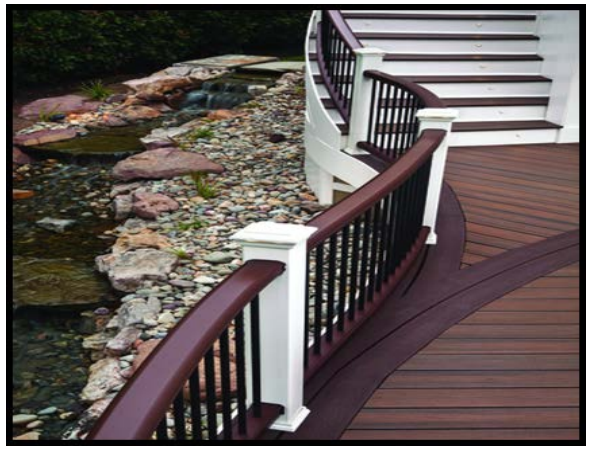
Transcend®

Pergola

Lighting



Elevations®



Railing

Wood Flour

Stretch Film

Plastic Bags

Acceptable Household Film

ALL ITEMS MUST BE CLEAN AND DRY

- Grocery Bags
- Stretch Film / Shrink Wrap
- Newspaper Sleeves
- Paper Towel / Toilet Paper Overwrap
- Produce Bags
- Dry Cleaning Bags
- Case Wrap (used to wrap soda bottles, canned goods, water bottles, etc.)
- Ziploc Bags
- Bread Bags (without clip)
- Ice Bags (DRY - without metal clips)
- Mattress Bags
- Shipping Pillows, deflated
- Polyethylene Foam (used in wrapping furniture)
- PE Packaging (2 and 4)

Oxo Biodegradable and / or Compostable Bags / Films

- Threaten the future of this currently viable recycling stream
- By definition, these items are not recyclable
- We have a 25 year warranty on our products

- These items CAN NOT be included in film recycling programs

Member of FFRG (ACC)

- Primary Goal – Double recycling rate in 5 years
  - Nationally, more than 1 billion #s of bags and wraps were recycled in 2011
    - Up 55% from 2005
  - Nearly 1.2 B #s of bags & wraps in 2014

*Source: Moore Recycling Associates, Sonoma, CA

- How?
  - Communicate
  - Collect
  - Consolidate

Case Study # 1
Vancouver, WA

- Population 450,000
- Goal: reduce film at MRF
  - Film 4% of contamination with carts
- "Recycling Done Right Campaign" Promotion
  - Mailers
  - Cart tags
  - Bins w/ signage
  - Bag stuffers
  - "L" signs on check stand monitors

Vancouver's Results

- 125% increase in material returned from stores
- No increased contamination
- Reduction of bags at MRF by 75%

- Data provided by Moore Recycling Associates

Case Study # 2
Milwaukie, Wisconsin

- Wisconsin identified film & bag recycling as statewide goal 2015
- Campaign goal:
  - Test tactics in increasing consumer awareness
  - Improve film recycling opportunities in Milwaukie
- Used 10 Roundy's stores
  - With single main entrances
  - Hadn't conducted significant outreach before
- Bins, signage

Milwaukie's Results

- 25% increase in film collected
- Minimal increase in contamination
- 41% increase in consumer awareness
  - Positive measurable impact on customer knowledge about film recyclability
  - Respondents communicated that program gives them a positive impression of the store
    - 36% will select a store because they offer film recycling

Case Study # 3
Regional Grocer in NY

- Training
- Bins in store fronts w/ posters
- Collection locations in rear of store

- Volume increased 31% year over year 2013 vs. 2014
- Up another 9% 2015 vs. 2014

Focus on Product Development

- Supply is not an issue
  - Abundance of volume available
- Just because you collect film does not ensure you will have an end market
  - The end user sets requirements for stream
  - It is not cost effective / economical to sort the materials once they have been collected and baled
  - The material will never be equal to virgin quality

Emphasis on Changing the Product

- Not cost effective to recycle commercial stretch film into more clear stretch film
- You can make something functionally acceptable, but it may look different
- Make something new to accommodate these differences
  - Lumber
  - Containers
  - Pipe
  - Trash Bags
- Product application development takes TIME

Guide to Using Recycled Content

- Identify a raw material stream
- Must be committed to using it in a product
- Understand that recycled materials are not the same as virgin
  - Will process differently, and will likely produce an end product that looks or performs differently
    - Requiring formulation changes to “recipe”
    - Requiring equipment and / or processing changes

Reconsider Your Product

- Think of Recycling Film like Recycling Crayons
  - Large variety of colors (types of films)
  - Challenge: How do you make an individual product out of a mix of materials?
  - When all of the colors of crayons are melted together you end up with Gray
  - It is difficult to make a good Lime Green from Gray
  - Instead of original intention – multi-colored crayons for children – produce a Gray carpenter's crayon

Challenges Recycling PE Film

- Stretch film family contains 20-30 different types of films for differing applications
  - Hexene vs. Butene
  - Blown vs. Cast
  - Differing strengths of end product
  - Differing grades of end product
- Inside a clear “stretch film” bale there can be a lot of variability in the types of film collected
- Even greater variability when you add post consumer film, color, etc.

Challenges Recycling PE Film

- Additional variability in material stream
  - Melt
  - Moisture Content
  - Color
  - Contamination
    - Sortable – some paper, metal, some rigids, etc.
    - Not sortable – paper labels, PP film, dirt, etc.
  - Density, etc.
- This can vary bale to bale, load to load

Evolution in Trex Recycling

- Started using recycled HDPE single use shopping bags
  - Natural Legacy Trex
- Changed Product – accommodate color of recycled HDPE film stream
  - Winchester Gray Legacy Trex
- Changed Process – added use of LLDPE film
  - Addressed mixing, extrusion, dies

Evolution in Trex Recycling

- Changed Process – added use of LDPE film
  - Addressed mixing, extrusion, dies
- Changed Process – interested in consuming highly contaminated film streams
  - Added wash operations
- Changed Process – interested in addressing sortable & paper contamination (labels)
  - Added sort line & melt filtration operations

Evolution in Trex Recycling

- Changed Process – interested in consuming streams containing polypropylene film
  - Increased blending / homogenization
- Changed Product & Process – now able to consume more contaminated film streams
  - Created Transcend product line
    - Also addressed consumer request for improved finish
  - Co-extrusion – additional equipment investment

In Summary

- There needs to be a long term commitment to buying and consuming recycled content
- It will not be easy, and there will be many adjustments to both:
  - The end product you are producing
  - The process in which you produce it
- Work with your direct supplier to optimize material supply as process & product are revised

Thank you!

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